



A.D. 1858, 24th SEPTEMBER. N° 2143.

S P E C I F I C A T I O N

OF

ROBERT FORD AND WILLIAM FORD.

CONSUMPTION OF SMOKE.

L O N D O N :

PRINTED BY GEORGE E. EYRE AND WILLIAM SPOTTISWOODE,

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Consumption of Smoke.

(This Invention received Provisional Protection only.)

PROVISIONAL SPECIFICATION left by Robert Ford and William Ford at the Office of the Commissioners of Patents, with their Petition, on the 24th September 1858.

We, ROBERT FORD and WILLIAM FORD, Gas Engineers, of Number Four, 5 Nelson Street, Perth, Scotland, do hereby declare the nature of the said Invention for "SMOKE CONSUMING BY MEANS OF A RECIPROCATING OR REVERSING FIRE," to be as follows, viz^t. :—

The furnace or fire-place under boilers used for generating steam or heating water or other boilers is divided into two compartments by means of a division wall or partition. This partition being placed on a level with the grate or bars of the furnace, reaching up to and touching the bottom surface of the boiler. In this partition a passage or opening is left to allow the smoke to pass from one compartment to the other; the passage left as above being close to the front of the furnace at the back of the furnace door, and the lower surface thereof to be on a level with the bars. The size of the opening or passage not to exceed more than one-third of the area contained in the flue leading from the furnace to the stalk. Each compartment is furnished with a separate furnace door and damper at the back end of grates or furnaces. (If not practicable to place the dampers at back end of grates, they can be applied at the extremity of the boiler.) At the opening left in the partition or division wall provision is made for the admission of atmospheric air from below, by means of small bars or a perforated plate. The supply of air is regulated by a shutter or door underneath. The furnaces or compartments

R. and W. Ford's Improvements in the Consumption of Smoke.

are charged alternately, and the damper in connexion with the chamber into which the fresh or green coal is introduced is shut down, thereby preventing the escape of smoke to the chimney. The smoke or gases emitted or generated from the fresh or green coal are retarded on the way into the other fire-place by the size of the opening in the division wall, and from confinement 5 to an extent in the furnace attain the necessary temperature, which compels the gases to unite, and gradually lessens the bulk of the smoke, which, as it now moves thro' the opening in the partition, is mixed with a quantity of atmospheric air, when it ignites and passes over the other fire, burning with great rapidity, and yields a large extent of heating power. The consuming of 10 the smoke is thereby completely obtained.

By the above mode of charging & regulating the furnace dampers, considerable saving of fuel, and the lessening of labour attendant, is attained. In furnaces constructed on the old system with a brick partition or wall built for dividing the furnace and flues, the saving will average from ten to 15 twenty per cent. Where boilers are constructed with the division forming part of the boilers themselves, or in boilers where two tubes exist, and the fire-grates within the tubes, with the necessary opening or passage between the fires, the saving will average from twenty to thirty per cent. This Invention is applicable to the most of furnaces.

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